STATE OF SOUTH CAROLINA	)	
	)	**BEFORE THE**
(Caption of Case)	)	**PUBLIC SERVICE COMMISSION**
	)	**OF SOUTH CAROLINA**
In re:	)	
	)	**COVER SHEET**
Petition To Establish Docket To Consider	)	
Implementing the Requirements of Section 1307	)	
(State Consideration of Smart Grid) of the Energy	)	**DOCKET**
Independence and Security Act of 2007	)	**NUMBER: 2008 - 447 - EG**
	)	
	)	
	)	

(Please type or print)

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NOTE: The cover sheet and information contained herein neither replaces nor supplements the filing and service of pleadings or other papers as required by law. This form is required for use by the Public Service Commission of South Carolina for the purpose of docketing and must be filled out completely.

DOCKETING INFORMATION (Check all that apply)

☐ **Emergency Relief demanded in petition** ☐ **Request for item to be placed on Commission's Agenda expeditiously**

☐ **Other:**

INDUSTRY (Check one)	**NATURE OF ACTION (Check all that apply)**		
☐ Electric	☐ Affidavit	☐ Letter	☐ Request
☒ Electric/Gas	☐ Agreement	☐ Memorandum	☐ Request for Certificatio
☐ Electric/Telecommunications	☐ Answer	☐ Motion	☐ Request for Investigatior
☐ Electric/Water	☐ Appellate Review	☐ Objection	☐ Resale Agreement
☐ Electric/Water/Telecom.	☐ Application	☐ Petition	☐ Resale Amendment
☐ Electric/Water/Sewer	☐ Brief	☐ Petition for Reconsideration	☐ Reservation Letter
☐ Gas	☐ Certificate	☐ Petition for Rulemaking	☐ Response
☐ Railroad	☐ Comments	☐ Petition for Rule to Show Cause	☐ Response to Discovery
☐ Sewer	☐ Complaint	☐ Petition to Intervene	☐ Return to Petition
☐ Telecommunications	☐ Consent Order	☐ Petition to Intervene Out of Time	☐ Stipulation
☐ Transportation	☐ Discovery	☒ Prefiled Testimony	☐ Subpoena
☐ Water	☐ Exhibit	☐ Promotion	☐ Tariff
☐ Water/Sewer	☐ Expedited Consideration	☐ Proposed Order	☐ Other:
☐ Administrative Matter	☐ Interconnection Agreement	☐ Protest	
☐ Other:	☐ Interconnection Amendment	☐ Publisher's Affidavit	
	☐ Late-Filed Exhibit	☐ Report	

BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2008-447-EG

Petition To Establish Docket To Consider Implementing the Requirements of Section 1307 (State Consideration of Smart Grid) of the Energy Independence and Security Act of 2007	))))	CERTIFICATE OF SERVICE

I, Catherine E. Heigel, hereby certify that copies of Duke Energy Carolinas, LLC's Direct Testimony of witnesses Jeffrey R. Bailey, Donald H. Denton, III, Jane L. McManeus, Robert A. McMurry, and Richard G. Stevie, Ph.D. have been either e-mailed or placed in the U.S. Mail on this date, to the parties of record at the addresses shown below, with sufficient postage attached:

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This the 4th day of August, 2009.

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BEFORE THE

PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2008-447-EG

	)	
Petition To Establish Docket To Consider	)	**DIRECT TESTIMONY OF**
Implementing the Requirements of Section	)	**JEFFREY R. BAILEY**
1307 (State Consideration of Smart Grid) of	)	**FOR DUKE ENERGY CAROLINAS, LLC**
the Energy Independence and Security Act of	)	
2007	)	
	)	

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Jeffrey R. Bailey. My business address is 1000 East Main Street, Plainfield, Indiana 46168.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Duke Energy Business Services, LLC, an affiliated service company of Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the "Company") as Director, Pricing and Analysis.

Q. PLEASE SUMMARIZE YOUR EDUCATION.

A. I received Bachelor of Science degrees in Industrial Management and Engineering from Purdue University, West Lafayette, Indiana. I also received a Master of Science degree majoring in Industrial Engineering from Purdue University.

Q. PLEASE SUMMARIZE YOUR WORK EXPERIENCE.

A. I began my employment with PSI Energy, Inc. ("PSI") in 1990 as Supervisor, Rate Engineering. I was subsequently promoted to Manager, Rate Engineering in 1991. I held several positions in the Rate, Pricing, and Market Planning areas until 1997, when I accepted the position of Manager, Sales Analysis. In 2000, I joined the Financial Operations Department, where I held the positions of Manager, Financial Projects, and Manager, Finance. I returned to the Rate Department in 2002, as Manager, Pricing. My primary responsibility during this time was the development and administration of the rates and charges, as may be contained in tariffs, agreements, or contracts for electric service, for Cinergy Corporation ("Cinergy") and its affiliate companies, including the Union Light, Heat and Power Company ("ULH&P"). I was promoted to my current position as Director Pricing and Analysis in October 2006.

Before joining PSI in 1990, I was employed by the Indiana Utility Regulatory Commission ("IURC"). I began my employment at the IURC in 1983 as a Staff Engineer. During my tenure with the IURC, I held several positions, progressively increasing in responsibility, the last of which was Assistant Chief Engineer. My primary responsibility as Assistant Chief Engineer was the supervision of the gas and electric sections that investigated rate and regulatory matters pending before the IURC.

Q. WHAT ARE YOUR DUTIES AS DIRECTOR, PRICING AND ANALYSIS?

A. As Director, Pricing and Analysis, I am responsible for the development of the Company's rates and charges for all of Duke Energy Corporation's utility operating companies.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to discuss the rate design standards for electric utilities as set forth in the Energy Independence and Security Act of 2007 ("EISA 2007"), which amend the Public Utilities Regulatory Policy Act of 1978 ("PURPA"). I discuss Duke Energy Carolinas' position on the Public Service Commission of South Carolina's ("Commission") consideration to adopt the rate design standards to promote energy efficiency for electric utilities. More specifically, I address two of the PURPA Amendment policy considerations for electric rate designs, namely: 1) including the impact on the adoption of energy efficiency as one of the goals of retail rate design, recognizing that energy efficiency must be balanced with other objectives; and 2) adopting rate designs that encourage energy efficiency for each customer class. I also discuss Duke Energy Carolinas' current rate design and policies that are responsive to the EISA 2007 rate design standards.

II. RATE DESIGN CONSIDERATIONS OF EISA 2007

Q. ARE YOU FAMILIAR WITH THE EISA 2007 STANDARD APPLICABLE TO RATE DESIGN FOR ELECTRIC UTILTIES?

A. Yes. The standard for electric utilities states that rates allowed to be charged by any electric utility shall align utility incentives with the delivery of cost-effective energy efficiency and promote energy efficiency investments. To achieve those goals, regulatory Commissions are to consider six policy options for electric utilities.

Q. WHAT ARE THE POLICY CONSIDERATIONS RELATED TO ELECTRIC UTILTIES?

A. The policy considerations for electric utilities include:

1) removing the throughput incentive and other regulatory and management disincentives to energy efficiency;
2) providing utility incentives for the successful management of energy efficiency programs;

3) including the impact on adoption of energy efficiency as one of the goals of retail rate design, recognizing that energy efficiency must be balanced with other objectives;

4) adopting rate designs that encourage energy efficiency for each customer class;

5) allowing timely recovery of energy efficiency-related costs; and

6) offering home energy audits, offering demand response programs, publicizing the financial and environmental benefits associated with making home energy efficiency improvements, and educating homeowners about all existing Federal and State incentives, including the availability of low cost loans that make energy efficiency improvements more affordable.

EISA 2007 § 532(a)(17)(B)(1-6).

Q. SHOULD THE COMMISSION ADOPT THE EISA 2007 PURPA RATE DESIGN STANDARDS FOR ELECTRIC UTILTIES?

A. Although Duke Energy Carolinas does not oppose the standards and believes that electric utility incentives should be aligned with the delivery of cost-effective energy efficiency and promote investment, the Company does not think the adoption of the EISA 2007 PURPA standards are necessary to accomplish this goal in South Carolina. Section 58-37-20 of the South Carolina Code of Laws ("S.C. Code. Ann.") provides the Commission with the necessary authority, if it chooses, to encourage utility energy efficiency investment.

Q. WHAT IS THE COMPANY'S OPINION ON THE POLICY CONSIDERATION OF INCLUDING THE IMPACT ON ADOPTION OF ENERGY EFFICIENCY AS ONE OF THE GOALS OF RETAIL RATE DESIGN?

A. Although the Company believes energy efficiency should be encouraged, Duke Energy Carolinas supports the general concept that rates charged to core markets, including retail residential, general service, industrial, and other customer classes, should approximate the cost of providing these customers with service. It is intrinsically fair that customers should pay rates that reflect the cost that the utility incurs to provide service. Encouraging energy efficiency, while important, must be in alignment with the cost of service for the benefit of both the customer and the utility.

Q. WHAT IS THE COMPANY'S OPINION ON THE POLICY CONSIDERATION OF ADOPTING RATE DESIGNS THAT ENCOURAGE ENERGY EFFICIENCY FOR EACH CUSTOMER CLASS?

A. As previously discussed, base rate designs must take into account a number of factors, including cost of service, and the utility's load data, peak, and customer characteristics. As such, the Company believes that rate design alternatives such as inverted/inclining or declining block structures should be justified and supportable through competent studies. Utilities should not be forced to implement rate designs that are not supportable by such studies.

Although rate design can certainly facilitate energy efficiency investment, it can be encouraged in ways other than through the utility's design of its base rates. For example, S.C. Code. Ann. § 58-37-20 allows the Commission to approve utility-sponsored energy efficiency programs and provide an incentive for the utility to make energy efficiency investments. Duke Energy Carolinas firmly believes that under S.C. Code Ann. § 58-37-20 and with the proper incentive, utility-sponsored energy efficiency initiatives and the resulting impacts will reach their full potential.

Q. WHEN ARE DECLINING BLOCK RATE STRUCTURES APPROPRIATE?

A. Declining block structures can be used to recover fixed costs of the utility in the early blocks to aid the utility in revenue stability, or to recover the customer component of costs not recovered in the customer charge.

Additionally, declining block structures are justified when improving load factor with increased usage warrants a reduction in the price to be paid because these customers impose less demand as a function of usage than lower load factor customers. In essence, a customer that has a greater proportion of energy usage to their demand usage should have a lower per unit cost, otherwise these higher load factor customers would contribute excessively to the fixed costs of the utility.

Q. WHEN IS AN INCLINING OR INVERTED BLOCK STRUCTURE APPROPRIATE?

A. In general, an inverted or inclining block structure implies that increased usage is inefficient and lower usage is efficient. Further, an inverted block will not encourage reductions during particular periods such as peak unless they are coupled with time-of-use rates. Inverted block structures have also commonly been associated with attempting to reflect marginal costs. However, without a time–differentiated rate (which would eliminate the need for an inverted structure in the first place), there is no way to determine whether the usage at any point during the monthly billing period is truly on the margin. Furthermore, without evidence of disproportionately increased on-peak usage as energy consumption rises, one cannot conclude that an inverted structure is justifiable. Duke Energy Carolinas' data does not suggest that any such disproportionate relationship exists.

III. DUKE ENERGY CAROLINAS' CURRENT RATE DESIGN

Q. HOW DOES DUKE ENERGY CAROLINAS DESIGN ITS VARIOUS RATE SCHEDULES?

A. Duke Energy Carolinas periodically examines its rate structures and uses information derived from its cost of service studies as a major component for the rate design. The cost of service information provides the allocation of costs to the various rate classes and separation of the customer and demand components of cost. Additionally, the Company's load research data is reviewed to determine relationships between energy and demand that might prove pertinent to the design of the rates.

Q. WHAT ARE THE COMPANY'S MAJOR RETAIL ELECTRIC RATE SCHEDULES?

A. The Company's major retail residential electric rate schedules include: Rate Schedules RS, RE, and ES - that accommodates basic residential service, all-electric residences, and Energy Star qualified homes, respectively. In its recently filed general rate case, the Company proposes to consolidate its general service rate schedules into Schedules SGS – Small General Service and Rate LGS – Large General Service; Schedule I for industrial service; and optional time-of-use Schedule OPT.

Q. WHAT ANALYSIS WAS COMPLETED TO EVALUATE THE STRUCTURE OF THE RESIDENTIAL RATES?

A. In its general rate case pending in Docket No. 2009-226-E, the Company used load research data for residential customers to examine their usage characteristics. The Company reviewed the characteristics of these customers to examine the relationships between demand and energy use, both on a coincident and non-coincident basis.

Duke Energy Carolinas also reviewed the relationships between demand and energy relative to the customers' monthly kilowatt hour ("kWh") consumption. From its' load research data, the Company plotted individual customers' average monthly kWh usage versus their average non-coincident demand, which is the highest demand imposed by these customers during the calendar month. The Company found that, on average, load factor did not significantly improve with increased usage. This led to the conclusion that the per unit, or proportion, of non-coincident load imposed by these customers does not substantially change with increased usage.

Q. WHAT STRUCTURE FOR RESIDENTIAL RATES DOES THIS ANALYSIS SUPPORT?

A. This analysis supports a flat rate structure, or a single charge for each kWh.

Q. DOES DUKE ENERGY CAROLINAS HAVE ANY ELECTRIC TARIFFS IN PLACE THAT ENCOURAGE ENERGY EFFICIENCY AND ARE CONSISTENT WITH THE EISA 2007 PURPA AMENDMENTS?

A. Yes. Duke Energy Carolinas' rate schedule Hourly Pricing for Incremental Load ("Rate HP-X") is a voluntary tariff offering non-residential customers the opportunity to manage their electric costs by either shifting load from higher cost to lower cost pricing periods and adding new load during lower cost pricing periods, or to learn about market pricing. Schedule HP has been offered since 1993. The program is available to non-residential customers served under Rates LGS (proposed), I, OPT, or PG with loads in excess of 1,000 kW. Binding Price Quotes are sent to each participating customer on a day-ahead basis. The program is intended to be bill neutral to each customer with respect to their historical usage through the use of a Customer Baseline Load ("CBL") and the Company's Standard Rate Schedule LGS, I, OPT, or PG.

In addition to this rate schedule, the Company's Schedule OPT is time-differentiated by season and by on and off-peak periods. A substantial amount of the Company's general service and industrial load is served under this schedule. The Company also has an optional time-of-use rate for residential service.

Q. IF THE EISA 2007 STANDARDS FOR ELECTRIC UTILITIES WERE ADOPTED BY THE COMMISSION, WHAT WOULD BE THE LIKELY

IMPACT ON CUSTOMERS IN TERMS OF CONSUMPTION PATTERNS AND COST?

A. The impacts would all be highly dependent upon the final form of any design changes or programs that might be employed to accommodate the standards. It is safe to say, however, that impacts to customers can be significant, and careful review is needed to ensure that such impacts are reasonable and necessary to accomplish the objectives of the standard.

IV. CONCLUSION

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes.

BEFORE THE

PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2008-447-EG

Petition To Establish Docket To Consider Implementing the Requirements of Section 1307 (State Consideration of Smart Grid) of the Energy Independence and Security Act of 2007	))))))	**DIRECT TESTIMONY OF DONALD H. DENTON, III FOR DUKE ENERGY CAROLINAS, LLC**

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?

A. My name is Donald H. Denton, III. My business address is 400 South Tryon Street, Charlotte, North Carolina, 28285.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Duke Energy Business Services LLC, a service company affiliate of Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the "Company") as General Manager, Smart Grid Implementation, Strategy and Planning.

Q. PLEASE BRIEFLY DESCRIBE YOUR JOB DUTIES AS GENERAL MANAGER, SMART GRID IMPLEMENTATION, STRATEGY AND PLANNING.

A. As General Manager, my role is to oversee the development and operation of Duke Energy Corporation's ("Duke Energy") Smart Grid strategy and planning group, which includes the development and management of design basis, vendor relationships and our program management office.

Q. PLEASE BRIEFLY DESCRIBE YOUR PROFESSIONAL AND EDUCATIONAL BACKGROUND.

A. I received a Bachelor of Science Degree in Aerospace Engineering from the Georgia Institute of Technology in 1992, and an Executive Master's Degree in Business Administration from Queens University in Charlotte in 2007. I am a licensed Professional Engineer in both North and South Carolina, and a licensed General Contractor in North Carolina. I began my career with Duke Energy in

1992 as an Associate Engineer for Duke Engineering & Services Corporation ("DE&S"). I then progressed through a variety of project management and leadership roles, including management of multiple industrial energy optimization projects for large Fortune 500 customers, including major chemical and oil companies. I also led the business development, design, construction and startup efforts of a greenfield natural gas-fired steam plant for a textile company in South Carolina. Before leaving DE&S, I was named to lead the project I was hired to support: the development of an Integrated Gasification Combined Cycle facility that had received a United States Department of Energy ("DOE") Clean Coal Round V grant. In 2002, I joined Duke Power Company (now known as Duke Energy Carolinas) where I managed a strategic and business planning effort, which resulted in an integrated ten-year strategic plan. In 2004, I moved into Duke Power's major projects group as a project director managing multiple projects, including the design and construction of a one-of-a-kind natural gas-fired combustion turbine facility. Most recently, I served as director of deal structuring and valuation where I managed a group responsible for developing financial models and deal structures for large retail and wholesale opportunities. I was named to my current position in January 2008.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to discuss the standards for electric utilities as set forth in the Energy Independence and Security Act of 2007 ("EISA 2007"), which amends the Public Utilities Regulatory Act of 1978 ("PURPA"). In particular, I will discuss Duke Energy Carolinas' recommendations in consideration of the factors required by EISA 2007 related to Smart Grid and the status of Duke Energy Carolinas' advanced metering project.

Q. WHAT IS DUKE ENERGY'S DEFINITION OF SMART GRID?

A. "Smart Grid" is the industry term for new technology, systems and processes that transform electric and gas distribution systems into an integrated, digital network – much like a computer network – to produce operating efficiencies, enhanced customer and utility information and communications, innovative services, and improved reliability among other benefits. One fundamental component of the Smart Grid project is Advanced Metering Infrastructure ("AMI"). AMI is a metering and communication system that records customer usage data over frequent intervals, and transmits the data over an advanced communication network to a centralized data management system. The usage data is made available to the utility and customers on a frequent and timely basis. Smart Grid projects use the communication network to carry data from AMI and other intelligent devices on the distribution grid, creating a networked system and utilizing the AMI to its greatest extent.

Smart Grid, however, is not limited to AMI metering. The possibilities with Smart Grid technologies are expansive as it is continuously evolving much like the internet has evolved over time. Smart Grid is much more than simply the functions it is capable of performing. It is an integration of many points on the electric distribution system which will provide capabilities and/or a platform for emerging technologies, many of which will be beyond the meter.

Additionally, EISA 2007 Section 1307(a)(17)(A-B) requires that all electricity purchasers shall be provided direct access, in written or electronic machine-readable form as appropriate, to information (e.g., prices, usage, intervals and projections, and sources) from their electricity provider. Moreover, Section 1307(a)(17)(C) requires that customers be able to access their own information at any time via the internet or another means of communication elected by the electric utility for Smart Grid applications. As discussed below, Duke Energy Carolinas attempts to address these issues in its recently approved Residential Energy Management System Pilot ("Smart Grid Pilot").

II. CONSIDERATION OF SMART GRID INVESTMENTS UNDER EISA 2007 SECTION 1307(a)(16)(A)

Q. ARE YOU FAMILIAR WITH THE EISA 2007 STANDARDS IN SECTION 1307(a)(16)(A) THAT ARE APPLICABLE TO THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA'S ("COMMISSION") CONSIDERATION OF SMART GRID INVESTMENT?

A. Yes. The standards contained in EISA 2007 Section 1307(a)(16)(A) for Smart Grid investments provide that each state consider requiring that an electric utility, prior to undertaking investment in non-advanced grid technologies, demonstrate that it has considered its investment in grid technologies as they relate to six factors: total cost, cost effectiveness, improved reliability, security, system performance, and societal benefits.

Q. HAS DUKE ENERGY CONSIDERED THESE SIX POLICY FACTORS IN CONNECTION WITH ITS SMART GRID INVESTMENT IN SOUTH CAROLINA?

A. Yes. Duke Energy has considered all of these factors and is continuing to monitor them as they relate to Duke Energy Carolinas' Smart Grid investment in South Carolina.

Q. DOES DUKE ENERGY CAROLINAS AGREE WITH THE EISA 2007 FACTORS FOR CONSIDERATION RELATED TO SMART GRID IMPLEMENTATION?

A. Yes, the Company supports the EISA 2007 standards related to Smart Grid, but does not believe the standards need to be formally adopted by the Commission. All of the six factors set forth in EISA 2007 are appropriate elements to consider in implementation of Smart Grid and, in fact, Duke Energy Carolinas has independently considered each of them in evaluating its own Smart Grid initiative. The Company merely suggests that a formal adoption of the standard is not necessary as there are sufficient regulations, policies, and utility tariffs in place that accomplish the goals of the EISA 2007 standard.

Q. ARE THERE POLICY CONSIDERATIONS UNDER EISA 2007 THAT DUKE ENERGY CAROLINAS DOES NOT SUPPORT?

A. No. Indeed, Duke Energy Carolinas has analyzed and considered these same factors as it has studied and moved forward with its own Smart Grid initiatives in the states in which it operates, including South Carolina.

Q. PLEASE EXPLAIN IN GREATER DETAIL THE CONSIDERATION OF EACH OF THESE EISA 2007 FACTORS IN CONNECTION WITH SMART GRID IMPLEMENTATION?

A. The first factor which the Company is required to consider is total cost. Duke

Energy has retained KEMA, Inc., to model costs and benefits of its Smart Grid implementation. KEMA, established in 1927, is an international energy solutions firm providing technical and management consulting, systems integration and training services to more than 500 electric industry clients in 70 countries.

As Duke Energy moves forward with implementation of its Smart Grid initiative in each of the states in which Duke Energy operates, its understanding of costs and benefits will evolve as they develop. Duke Energy already knew that implementing Smart Grid will provide many benefits to customers and to society. At present, many of these benefits are not capable of measurement. Much like the internet, Duke Energy believes that Smart Grid will have many beneficial uses in the future for consumers, but currently, applications and technologies are only emerging. Likewise, some benefits cannot be quantified. For example, if an outage occurs on a residential circuit, Smart Grid technology may enable Duke Energy to know of it prior to the customer knowing of the outage. It may be repaired even while a customer is away from the home. Thus, there is no inconvenience or unnecessary time loss for the customer. On the business side, such efficiency can be measured in man hours saved, but the convenience to the customer is difficult to measure. As a result, although Duke Energy can measure some benefits, others should be considered as well even though it is difficult to assign dollar values.

Q. PLEASE DESCRIBE DUKE ENERGY'S EFFORTS IN INVESTIGATING INVESTMENT IN SMART GRID TECHNOLOGY.

A. Duke Energy began investigating the development of a data management system in 2004. Initially, the purpose was to gather and correlate data on generation characteristics, outages, transmission loading, distribution system constraints and meters, and then use that data to better optimize Duke Energy's system and employee work loads. The investigation led to the determination that opportunities existed to further enhance system performance and operations.

In 2006, Duke Energy initiated an internal working group consisting of every operational area (except generation) tasked with putting together "use cases" designed to describe what technology Duke Energy needed to accomplish with this initiative and how it wanted to provide service and use products in the future. Approximately 18-20 "use cases" were developed in conjunction with KEMA, whose staff analyzed and shaped the "use cases" using information from peer companies, and helped to determine what technology would be needed in order to accomplish the goals of each use case.

Once Duke Energy determined the actual technologies needed to bring its vision for the future (as set forth in its "use cases"), vendors of metering, behind-the-meter and communication products were surveyed to assess their product offerings and to compare to Duke Energy's functional requirements. Duke Energy's vision was to have interoperable metering endpoints which would work with any communication system, and what was offered were metering endpoints that only connected to proprietary communication systems. Duke Energy Carolinas has selected a few firms that were closest to meeting its needs and has been working with them to move toward full compliance with its requirements and vision. Duke Energy is continuing to work with several vendors to best implement its vision of Duke Energy's future in this area. At this point, Duke Energy has developed an architecture that allows it to minimize the proprietary communications networks and increase the long-term flexibility of the Smart Grid. The process of developing technology and vendors will be an ongoing process.

Duke Energy has developed a prototype of its Smart Grid vision, which it calls the Envision Center. Located in Raleigh on the North Carolina State University Research Campus at Advanced Energy, the Envision Center represents what Duke Energy foresees as the culmination of Smart Grid technology design and implementation for the future of energy delivery. The Envision Center provides visitors an interactive and special effects experience that demonstrates the possibilities of modernizing to Smart Grid and energy efficiency technology. The center features a demonstration consisting of representative distribution infrastructure with two-way digital technology, a "smart" home – complete with solar panels and a plug-in hybrid vehicle, an apartment complex with "smart meters" and a power delivery work center – monitoring conditions with real-time data. Electric poles equipped with "intelligent" power equipment are also staged throughout.

Q. HAS DUKE ENERGY CONSULTED WITH INDUSTRY GROUPS ON ITS SMART GRID VISION?

A. Yes. Duke Energy has consulted and collaborated on its Smart Grid initiative with the Electric Power Research Institute ("EPRI"), the research and development arm of the electric utility industry. Duke Energy is working on multiple projects under EPRI's "Intelligrid" umbrella.

Duke Energy has also been working with the Gridwise Architectural Council and Gridwise Alliance, which were formed by the Pacific Northwest National Lab and the DOE to focus on researching the future of the smart grid. The focus of the Gridwise Architectural Council is on standards, i.e. how communication systems work together and the benefits of meters using the same "language." The Gridwise Alliance is involved in developing policies and standards at the state and federal levels. Duke Energy personnel are also involved in many other organizations that may have "smart grids" as a subset of their main focus, and participate in the internal development of Duke Energy's Smart Grid.

Representatives from Duke Energy have been involved with several conferences and seminars relating to Smart Grid investments. Utilimetrics (formerly AMR Associates) and Distributech hold annual conferences and trade shows in which Duke Energy participates in order to keep up-to-date on new developments in technology.

Q. HAS DUKE ENERGY PARTICIPATED IN ANY GOVERNMENTAL INITIATIVES RELATING TO SMART GRIDS?

A. Yes. Duke Energy has monitored the DOE's Modern Grid Initiative and frequently participates in venues to help shape the definition, direction and policy setting of this group. Duke Energy personnel also contribute, through trade associations, material to be considered in defining the smart grid, as well as setting national policy through the DOE.

Q. HAS DUKE ENERGY CAROLINAS OR ANY OF ITS SISTER UTILITIES ANALYZED SMART GRID DEPLOYMENTS WITHIN THEIR RESPECTIVE SERVICE TERRITORIES?

A. Yes. Duke Energy is conducting pilot deployments of Smart Grid technologies in most of its service territories that include installation of smart meters for electric and gas and the associated AMI infrastructure, distribution communications equipment, software, substation automation and line sensor equipment.

Q. PLEASE DESCRIBE THESE PILOT DEPLOYMENTS IN FURTHER DETAIL.

A. Duke Energy Carolinas has already installed approximately 2,300 Echelon electric smart meters, 4,600 GE electric smart meters and 1,200 Ambient data collection boxes in its South Carolina service territory. Automated meter reading and billing is not functional at this time as Duke Energy Carolinas continues to test and configure systems. Once the Ambient data collection boxes are configured and back office systems integration complete, automated customer billing will be enabled. The AMI pilot initiative also supports security best practices including firewalls, intrusion detection, isolated network segments and user access controls. The network is not accessible to the internet. The pilot initiative supports interval data collection from electric smart meters and provides for future rate structure flexibility. All of these potential benefits can be netted against their potential costs and benefits and can be considered incrementally by the Commission as the network is developed and refined.

On March 20, 2009, the North Carolina Utilities Commission approved Duke Energy Carolinas' Smart Grid Pilot in Docket No. E-7, Sub 906. The Smart Grid Pilot is designed to evaluate the technical potential, customer satisfaction, and operational characteristics of emerging energy management systems with up to 200 customers in Charlotte, North Carolina, where the Company has installed advanced metering equipment. Participating customers have an energy management system installed in their home and access to an online energy management portal, via the internet, with detailed information about their energy use. With this system, customers have the ability to better manage their energy consumption by controlling the times that various appliances operate and controlling the temperature settings for heating ventilation, and air conditioning. Customers are able to manage their energy use themselves, via the internet portal, or elect to have Duke Energy Carolinas automatically manage their energy use according to their personal energy profile.

Additionally, Duke Energy Carolinas plans to install approximately 14,400 Echelon electric smart meters and 3,200 Ambient data collection boxes in North Carolina during 2009. To date, approximately 5,800 Echelon smart meters and 1,200 Ambient data collection boxes have been installed. Automated meter reading and billing is functional for the 4,600 meters installed.

Duke Energy Ohio plans to install approximately 50,000 electric smart meters, 40,000 Orion/Badger gas meter modules and 10,000 Ambient data collection boxes in Ohio by mid 2009. To date, approximately 49,160 electric meters, 13,985 gas meters, 32,253 gas modules and 7,000 Ambient data collection boxes have been installed. Automated meter reading and billing are not functional at this time. Automated customer billing will be enabled by mid-year 2009 as the Ambient data collection boxes are configured and back office systems integrated.

Pursuant to the Kentucky Public Service Commission's order in Duke Energy Kentucky's last electric rate case, Duke Energy Kentucky started deploying an AMI solution that uses the electrical distribution system as the communication medium between the meter and the controlling software. Duke Energy has deployed approximately 25,800 gas AMI modules and approximately 37,300 electric AMI meters in Northern Kentucky since 2007. As of December 1, 2008, Duke Energy Kentucky obtained 98.5% of the AMI Electric readings on the first reading attempt, and 95.6% of the Gas readings on the first reading attempt. Automatic reread attempts raised the billing percentage (November cycle) to 99.5% electric and 97.7% gas. Duke Energy Kentucky is currently testing 15 minute interval readings on a small subset of commercial electric meters and 60 minute interval readings on a small group of residential electric meters. To date, the system is working successfully and Duke Energy continues to evaluate improvements as it gains experience and knowledge for integrating AMI capabilities into its operations and customer service processes.

Duke Energy Indiana has reached settlement with intervening parties and is awaiting an order from the Indiana Utility Regulatory Commission. Duke Energy Indiana plans to begin Smart Grid pilot deployments in Indiana when it receives an order to proceed.

Q. HOW DO DUKE ENERGY'S AMI PILOT INTIATIVES FURTHER THE GOALS OF THE EISA 2007 STANDARD?

A. Duke Energy's AMI pilot initiatives provide a possible solution for Duke Energy's overall Smart Grid implementation. Specifically, Duke Energy Carolinas' AMI pilot initiative in South Carolina will provide benefits to South Carolina customers through a possible solution that has the capability to confirm power-restoration events, contributing to improved reliability. Additionally, Duke Energy Carolinas' AMI pilot initiative in North Carolina specifically will provide benefits to Duke Energy Carolinas' South Carolina customers by enabling the Company to apply what it learns through the North Carolina AMI pilot initiative to its South Carolina customers.

Q. HAS DUKE ENERGY ALSO CONSIDERED COST EFFECTIVENESS AS IT RELATES TO SMART GRID IMPLEMENTATION?

A. Benefits, or cost savings, that offset the costs of deploying the Smart Grid, can be grouped into three major categories: operational benefits, quantifiable customer/societal benefits, and qualitative customer/societal benefits.

Operational benefits directly impact Duke Energy's costs of providing electric service to its customers. These operational benefits can be grouped into four primary categories:

- Metering Benefits including:
    1. Reduction in off-cycle/off-season meter reads, including the ability to remote connect/disconnect (up to 90% of off-cycle meter reading costs and 80% of electric connect/disconnect

costs).

2. Reduction in power theft resulting in increased revenues – This benefit is attributable to analysis of the continuous data flowing from the meters to back-office systems.

- Outage Benefits including:

1. Reduction in time spent by assessors determining which customers have been restored and which customers still have outages.
2. Reduction in time spent by outage crews in determining the location of the next work to be performed as part of outage restoration.

- Distribution Benefits including:

1. Reduction in demand through System Voltage Control – With the data provided by distribution automation components (substation, circuit breakers, capacitor bank, regulators), one is able to operate the entire system at a lower voltage level in the range of acceptable voltage levels. The lower voltage level translates into reduced demand that translates into an avoided cost benefit in terms of avoided capital investment or avoided power purchases.
2. Reduction in the costs of continuous voltage monitoring as this will now be an automated process.
3. Reduction in capital expenditures from more accurate and

automated asset management techniques.

4. Reduction in maintenance costs associated with capacitor and circuit breaker inspections.

- Other Operational Benefits including:

1. Decreased call volumes and call lengths improve the call center efficiency.
2. Reduction in billing costs related to a reduction in estimated bills.
3. Reduction in vehicle costs associated with meter reading vehicles used for AMR, including reduced insurance, reduced fuel costs, and reduced vehicle ownership/leasing costs.

Quantifiable customer/societal benefits are those benefits that accrue to customers and society as a whole and can be quantified based on external/industry studies. These benefits include:

- Reduction in the number of customer outages – A primary benefit of the distribution automation part of the Smart Grid Initiative is an increase in reliability, whereby the number of outage events may not be affected, but the number of customers experiencing outages as a result of these outage events will be reduced.
- Reduction in usage – Often called the Customer Feedback Benefit or the Prius Effect, this benefit results from a decrease in customer usage (thus lower customer bills) as a result of detailed usage information being provided to the customer by the utility. This benefit is not based on time-

of-use pricing; it is simply the decrease in usage that results when customers become more aware of their usage habits and the associated costs.

- Avoided costs associated with plug-in hybrid electric vehicles ("PHEVs") – This societal benefit values the generation costs (typically additional construction) that will be avoided if the predicted market penetration of PHEVs is realized and a Smart Grid is in place to assist in controlling the timing of the vehicle recharging.

Qualitative customer/societal benefits are those benefits that are readily identifiable as a benefit to customers or society as a whole, but that are extremely hard to accurately quantify. These benefits include:

- Increased customer satisfaction related to more accurate billing (few estimated bills), shortened time frames for meter read requests, connects and disconnects that do not require a service visit, and decreased outages and outage durations.
- Increased customer satisfaction related to additional choices, such as different rates and selectable bill dates, and additional usage information with which to make informed purchase/usage decisions.
- Increased road safety due to decreases in the number of vehicles on the road.
- Increased health of the environment due to reduced demand or managed demand.

Q. HOW WILL SMART GRID IMPROVE RELIABILITY FOR ELECTRIC SERVICE?

A. Smart Grid, including both distribution automation and advanced metering infrastructure builds the foundation for improving reliability in a number of ways. In addition to deploying smart meters and the supporting AMI infrastructure, Duke Energy's vision for its Electric Distribution Smart Grid includes:

1. Establishing communication links to all substations;
2. Replacing any distribution feeder circuit protective devices that are not conducive to automation with new circuit breakers that are conducive to automation;
3. Upgrading old electromechanical relays with state of the art microprocessor controlled relays, and establishing remote control capability of all electric distribution circuit breakers greater than 4kv;
4. Automating switched bank capacitors and voltage regulators to enable integrated volt/var optimization and implement a voltage reduction strategy;
5. Establish communication links and enable remote control capability of electronic reclosers; and
6. Enhanced sectionalization and deployment of self-healing technology.

The steps noted above will allow for automated outage reporting capability, provide accurate, near-real time information on distribution grid network status, and position Duke Energy to respond to outages in a timelier manner based on greater near-real time intelligence. The automation strategy noted above will allow for the response to some outages from remote locations such as work centers and introduce the utilization of localized on-site switching to mitigate the impacts on outages. The automation strategy noted above will reduce the system average interruption frequency index ("SAIFI") and system average interruption duration index ("SAIDI"). This is achieved by reduction the number of customers impacted during an outage event.

Q. HAS DUKE ENERGY CAROLINAS CONSIDERED SECURITY MEASURES IN CONNECTION WITH ITS IMPLEMENTATION OF SMART GRID?

A. Yes. The Smart Grid system will be secure. Duke Energy has a robust, defense-in-depth security architecture based on accepted and mature industry best practices. These best practices include network firewalls, intrusion detection systems, isolated network segments, and user access controls. Additionally, Smart Grid devices are secured by being connected to a dedicated network that is not accessible to the public Internet.

Q. PLEASE DISCUSS WHAT THE SYSTEM PERFORMANCE WILL PROVIDE.

A. Duke Energy Carolinas assumes that "system performance" as used in EISA 2007 means functionality that is enabled through SmartGrid technologies. For example, SmartGrid can enable Duke Energy Carolinas to assess load profile data for a home on an hourly basis for several days for trouble-shooting purposes. This information could be provided to customers concerned about their levels of usage. Information from the "end points" of the system will also be combined with data from other distribution assets to better plan for issues including, but not limited to, growth, asset management, and restoration services. Such data would also be helpful for short-term load forecasts, as well as the Company's voltage reduction proposal. Distribution system, energy efficiency and demand-response planning will also be enhanced by gathering more granular consumption data over weeks and months.

It is not just the meters that enable new options, but the entire Smart Grid system working together that will provide the Company with the ability to provide new service options for its customers. The data collected and transmitted through the intelligent meters, in conjunction with the distribution automation and communication equipment, will provide new operational efficiencies. Restoration of service after an outage will be more rapid and efficient. Duke Energy Carolinas will also be able to troubleshoot distribution problems using the communications network versus visual inspection. This will also reduce crew time in the field.

The intelligent meters and related SmartGrid equipment would also enable Duke Energy Carolinas to limit its amount of load in an emergency. It will enable the Company to increase its energy efficiency offerings, provide for larger-scale distributed generation, and maximize load control potential.

Customer service would also be enhanced. The Company will be able to obtain special reads for customers calling with questions about their meters, usage, or billing. Additionally, a larger quantity of customer-sited generation could be deployed and net metered.

Q. WILL DUKE ENERGY CAROLINAS BE ABLE TO RESELL OBSOLETE EQUIPMENT ELSEWHERE?

A. There appears to be a very limited market for used electric metering equipment, including solid state equipment. The national move to AMI technology has resulted in a large stock of this type of equipment, worldwide. An electromechanical meter may have only limited salvage value, based on the metal and glass components, but given the large number of meters that may be retired in a short period of time, it may be possible to create a state or national program to recycle the material from this equipment. It is important to note that any recycling program would have environmental benefit, but the return to the utility would be quite small. Because Duke Energy Carolinas is committed to making implementation of Smart Grid a positive program for the customer, however, every possible endeavor will be undertaken to reduce customer cost related to meter replacement.

Q. SHOULD QUALIFICATIONS FOR COST RECOVERY BE ESTABLISHED? FOR EXAMPLE SHOULD APPROVAL OF COST RECOVERY BE LIMITED TO A SPECIFIC TYPE SMART GRID TECHNOLOGY?

A. The Commission should avoid being overly prescriptive; setting standards could become burdensome and not allow utilities to offer new capabilities in the future that may not be fully developed today.[1] The Commission should consider identifying core functions for Smart Grid implementations and associated cost

[1] For example, plug-in electric vehicles may be commercially viable and cause a utility to add a functional component to promote efficient grid interconnection in the next 3 to 5 years.

recovery. These vendor-neutral functions should be commercially achievable, mature, and include reasonably well-defined costs and benefits.

Rather than develop a set of independent standards, the Commission should encourage Duke Energy Carolinas and other South Carolina utilities to adopt core functions in their implementations, which may be staged. This will ensure that customers have the most cost-effective technology solutions and are not locked into a unique solution that is costly and difficult to maintain. Should the Commission desire to include specific technology standards, a well-defined waiver process should be included that allows for a utility to provide evidence to support how waiving the requirements is in the public interest.

IV. SMART GRID INFORMATION (EISA SECTION 1307(a)(17)(A-C)

Q. ARE YOU FAMILIAR WITH THE SUGGESTED STANDARD IN EISA 2007 SECTION 1307(a)(17)(A-C)?

A. Yes. EISA 2007 Section 1307(a)(17)(A-C) provides that state regulatory bodies shall consider the following information, to the extent practicable and available: time-based prices or rates; kWh usage; updates of information on prices and usage offered on a daily basis, including hourly price and use information and a day-ahead projection of such price information; and annual written information on sources of power provided by type of generation (including greenhouse gas emissions) for available intervals.

Q. IS THIS INFORMATION AND ACCESS ALREADY AVAILABLE AT DUKE ENERGY CAROLINAS?

A. To some extent, yes. Duke Energy Carolinas currently offers time-of-use rates for all residential and non-residential customers. Another option for non-residential customers larger than 1000 kW is an hourly pricing rate which gives "day ahead" prices for incremental load above an established baseline.

In addition, customers that have demands greater than 5000 kW are generally metered using interval metering devices. Interval data is available internally for statistical analysis and for rendering bills. Customers that wish to receive this information may subscribe to an online tool for a monthly fee that will provide them with access to their interval data, along with the graphing and analytical tools. The service is provided to customers through Duke Energy Carolinas' "My Duke Energy" web portal, and the application is called "Energy Profiler Online." This same service is available for customers of any size who pay an additional fee for the necessary metering to provide interval data. A recent enhancement to this program provides a more customized installation of metering for end-use data that is almost "real time." General information on sources of power provided by type of generation is available on the Company's web site, but the other information discussed in section 1307(a)(17)(A-C) is currently not generally available to customers. Smarter meters, a communications network, and enhanced information technology infrastructure must be implemented before the other information can be made available to customers.

Q. OVERALL, DOES DUKE ENERGY CAROLINAS BELIEVE THE COMMISSION SHOULD ADOPT THE STANDARD SET FORTH IN EISA 2007 SECTIONS 1307(a)(16)(A-C) AND 1307(a)(17)(A-C)?

A. No. As stated earlier, however, although Duke Energy Carolinas supports the

EISA 2007 standards related to Smart Grid investments, it does not believe that the standards must be formally adopted by the Commission. Additionally, just two years ago in Docket No. 2005-386-E, the Commission determined that it was not necessary to adopt a very similar standard because of the activities that the utilities were already pursuing. The Company, by its own initiative, already has analyzed and considered the EISA 2007 standards and factors as it has studied and moved forward with its own Smart Grid initiative in North Carolina, and, therefore, adopting this similar standard is not necessary.

V. CONCLUSION

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes.

BEFORE THE

PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2008-447-EG

Petition To Establish Docket To Consider Implementing the Requirements of Section 1307 (State Consideration of Smart Grid) of the Energy Independence and Security Act of 2007	))))))	**DIRECT TESTIMONY OF JANE L. MCMANEUS FOR DUKE ENERGY CAROLINAS, LLC**

I. <u>INTRODUCTION AND PURPOSE</u>

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?

A. My name is Jane L. McManeus. My business address is 526 South Church Street, Charlotte, North Carolina.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am Director, Rates for Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the "Company").

Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL QUALIFICATIONS.

A. I graduated from Wake Forest University with a Bachelor of Science in Accountancy and received a Master of Business Administration degree from the McColl Graduate School of Business at Queens University of Charlotte. I am a certified public accountant licensed in the state of North Carolina and am chairperson of the Southeastern Electric Exchange Rates and Regulation Section and a member of the EEI Rate and Regulatory Analysts group. I began my career with Duke Power Company ("Duke Power") (now known as Duke Energy Carolinas) in 1979 as a staff accountant and have held a variety of positions in the finance organizations. From 1994 until 1999, I served in financial planning and analysis positions within the electric transmission area of Duke Power. I was named Director, Asset Accounting for Duke Power in 1999 and appointed to Assistant Controller in 2001. As Assistant Controller I was responsible for coordinating Duke Power's operational and strategic plans, including development of the annual budget and performing special studies. I joined the

Rates Department in 2003 as Director, Rate Design and Analysis. In April 2006, I became Director, Regulatory Accounting and Filings, leading the regulatory accounting, cost of service, regulatory filings (including fuel), and revenue analysis functions for Duke Energy Carolinas. I began my current position in the Rates Department in October 2006.

Q. PLEASE DESCRIBE YOUR DUTIES AS DIRECTOR, RATES FOR DUKE ENERGY CAROLINAS.

A. I am responsible for managing Duke Energy Carolinas' fuel cost recovery process, providing guidance on compliance with regulatory conditions and codes of conduct, and providing regulatory support for retail and wholesale rates.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to discuss the cost recovery considerations as stated in Section 1307 of the Energy Independence and Security Act of 2007 ("EISA 2007"), which amended the Public Utilities Regulatory Act of 1978 ("PURPA").

II. CONSIDERATION OF RATE RECOVERY OF SMART GRID INVESTMENTS UNDER EISA 2007 SECTION 1307(a)(16)(B-C)

Q. ARE YOU FAMILIAR WITH THE EISA 2007 STANDARDS IN SECTION 1307(a)(16)(B-C) THAT ARE APPLICABLE TO THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA'S ("COMMISSION") CONSIDERATION OF SMARTGRID INVESTMENT?

A. EISA 2007 Section 1307(a)(16)(B) requires that each state regulatory authority consider authorizing each electric utility to recover from customers any capital, operating expenditure, or other costs of the utility relating to the deployment of a qualified Smart Grid system, including a reasonable rate of return. EISA 2007 Section 1307(a)(16)(C) requires that each state regulatory authority consider authorizing electric utilities deploying a qualified smart grid system to recover in a timely manner the remaining book-value costs of any equipment rendered obsolete by its Smart Grid deployment, based on the remaining depreciable life of the obsolete equipment.

Q. WHAT COST RECOVERY CONSIDERATIONS SHOULD THE COMMISSION EVALUATE IN ORDER TO PROMOTE THE DEPLOYMENT OF A SMART GRID SYSTEM?

A. In the context of a general rate proceeding, a utility investing in the deployment of a Smart Grid system may recover from customers its capital, operating expenditure, consumer education and other costs relating to the deployment of a Smart Grid system, including a reasonable rate of return on its capital expenditures for the deployment of the system. In order to encourage the deployment of advanced technologies, however, allowing timely cost recovery via a rate adjustment mechanism and without the need for a base rate case is a fundamental requirement. Because of the number and timing of investments that would be made, requiring a utility to initiate a full rate review prior to recovering Smart Grid-related costs would serve as a deterrent to investments in advanced technology in comparison to implementation of a rate adjustment mechanism.

Q. WHAT PROCESS SHOULD BE USED TO RECOVER SMART GRID COSTS IN RATES?

A. Utilities should be authorized to recover Smart Grid costs concurrent with installation and subsequent operation. Considering the limited availability and potentially high cost of financing, and the goal of providing the benefits of Smart Grid technologies to customers in the most expeditious and cost-effective manner, following initial Commission approval to proceed with a Smart Grid plan, project cost recovery should be accomplished through a Commission-approved rate adjustment mechanism. The rate adjustment mechanism should allow the utility to recover Smart Grid costs on an estimated basis concurrent with the time period in which costs are incurred, with a true-up to actual costs when known. Project cost recovery would include recovery of the financing costs on capital investment during the construction period, as well as recovery of a return on investment and depreciation expense, along with associated operating costs after the investments are placed into service.[1] The cost recovery process would involve periodic filings of estimated and actual costs, subject to Commission review and inclusion in the rate adjustment mechanism. All appropriate costs would be included in the rate base, operating costs, and cost of capital in the utility's next general rate case for future recovery through base rates instead of the rate adjustment mechanism.

A significantly less-preferable option would be advance approval of the Smart Grid projects, with associated deferred accounting authority (including a return on deferred costs), which would permit the costs to be recovered through a traditional base rate case. This approach delays the Company's cash recovery of costs incurred and would result in greater overall capital requirements for the

[1] No Allowance for Funds Used During Construction would be accrued for any project amount for which construction period financing costs are included for recovery through the rate adjustment mechanism.

Company. This results in higher costs to customers due to the additional financing costs that would be incurred and recognized via the accrual of Allowance for Funds Used During Construction. Unlike some utility investments, Smart Grid investments will likely involve numerous investments that will be made virtually every day of the deployment period – smart meters, sensors and other distribution automation equipment, communications equipment, *etc*. These types of equipment go into service almost immediately. There is simply no way to time a general rate case (or cases) to capture these types of investments without the utility suffering material earnings and cash flow erosion in the process, to the potential detriment of its credit quality.

Q. WHAT COSTS SHOULD BE INCLUDED FOR RECOVERY?

A. A utility investing in a Smart Grid system should be authorized to recover the following prudently-incurred costs associated with the full or partial deployment such system:

- Implementation, operating, marketing, education, and other expenses required to deploy the approved program.
- Return and depreciation for capital investments, including, but not limited to, those associated with hardware, meters, accompanying data transmission systems, data management infrastructure, software, and other associated items, as well as operation and maintenance expenses related to the investment, including property taxes. Recovery of these costs should be reduced by any achieved

and quantifiable operational savings that result from the Smart Grid deployment.

- Net book value of any obsolete equipment that will be removed and replaced with updated equipment as a result of the deployment of Smart Grid.
- Any additional costs associated with updating systems or other direct or indirect costs supporting a new program.

Q. SHOULD THE COMMISSION AUTHORIZE A UTILITY INVESTING IN A SMART GRID SYSTEM TO RECOVER IN A TIMELY MANNER THE REMAINING BOOK-VALUE COSTS OF ANY EQUIPMENT RENDERED OBSOLETE BY SUCH DEPLOYMENT, BASED ON THE REMAINING DEPRECIABLE LIFE OF THE OBSOLETE EQUIPMENT?

A. The remaining book value of equipment rendered obsolete is a legitimate and reasonably incurred cost to install a Smart Grid system, and should be recoverable subject to Commission approval. The deployment of advanced technology could include electric meters and electromechanical distribution devices such as switches or reclosers. To the extent a utility has a large percentage of its existing electric meters and devices in service that are less than 30 years old, the replacement of such equipment may result in the need to account for the removal of thousands of devices prior to reaching their respective 30-year depreciable life.

Recovery of the cost of obsolescence over the remaining depreciable life of the obsolete equipment or, alternatively, an accelerated period, should be determined by the deploying utility, and allowed by approval of the Commission.

III. SMART GRID INFORMATION (EISA 2007 SECTION 1307(a)(17)(A-C))

Q. OVERALL, DOES DUKE ENERGY CAROLINAS BELIEVE THE COMMISSION SHOULD ADOPT THE STANDARD SET FORTH IN EISA 2007 SECTIONS 1307(a)(16)(A-C) AND 1307(a)(17)(A-C)?

A. No. Although Duke Energy Carolinas supports the EISA 2007 standards related to Smart Grid investments, it does not believe that the standards must be formally adopted by the Commission. As discussed in my testimony above, the Commission's existing authority over rate making provides the necessary legal basis for the recovery of Smart Grid investments. The Company does believe that, consistent with EISA 2007 § 1307(a)(16)(B-C), the Commission should authorize appropriate cost recovery for costs related to the implementation of Smart Grid technology, including the remaining book value of equipment rendered obsolete. In order to promote the development of Smart Grid systems, the cost recovery mechanisms approved by the Commission should take into consideration the nature and timing of Smart Grid installations and investment and provide for timely recovery.

IV. CONCLUSION

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes.

BEFORE THE

PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2008-447-EG

Petition To Establish Docket To Consider Implementing the Requirements of Section 1307 (State Consideration of Smart Grid) of the Energy Independence and Security Act of 2007	))))))	**DIRECT TESTIMONY OF ROBERT A. MCMURRY FOR DUKE ENERGY CAROLINAS, LLC**

I. INTRODUCTION AND PURPOSE

Q: PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION WITH DUKE ENERGY CORPORATION.

A: My name is Robert A. McMurry, and my business address is 526 South Church Street, Charlotte, North Carolina. I am Director, Integrated Resource Planning ("IRP") for Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the "Company"). Duke Energy Carolinas is a wholly-owned subsidiary of Duke Energy Corporation ("Duke Energy").

Q: WHAT ARE YOUR CURRENT JOB RESPONSIBILITIES?

A: I have responsibility for integrated resource planning and environmental compliance for Duke Energy Carolinas. In that role, I oversee the long-term resource planning.

Q: PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL AFFILIATIONS.

A: I am a civil engineer, having received a Bachelor of Science in Engineering from the University of North Carolina at Charlotte. I began my career at Duke Power Company (now known as Duke Energy Carolinas) in 1982 and have had a variety of responsibilities across the Company in areas of structural design, environmental strategy, allowance management and resource planning. I am a registered Professional Engineer in North Carolina and South Carolina.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to provide an overview of Duke Energy Carolinas' IRP process and to discuss Duke Energy Carolinas' position regarding whether or not the Energy Independence and Security Act of 2007 ("EISA 2007") IRP standard should be adopted by the Public Service Commission of South Carolina ("Commission"), and if not, whether there are any integrated resource planning standards that should be considered.

II. EISA 2007 INTEGRATED RESOURCE PLANNING STANDARD

Q. ARE YOU FAMILIAR WITH THE INTEGRATED RESOURCE PLANNING STANDARD SET FORTH IN THE EISA 2007?

A. Yes. The standard proposes that each utility develop a plan to "integrate energy efficiency resources into utility, state, and regional plans, and adopt policies establishing cost-effective energy efficiency as a priority resource." EISA 2007 § 532(a)(16)(A-B).

Q. IS ADOPTION OF THIS STANDARD NECESSARY IN SOUTH CAROLINA?

A. No. Although Duke Energy Carolinas agrees that energy efficiency should be considered as part of the utility's resource planning process, the Company does not believe this standard is necessary, and it should not be adopted by the Commission. The State of South Carolina, through its grant of authority to the Commission, has sufficient statutes and requirements already in place that promote energy efficiency and accomplish the goal of the EISA 2007 Integrated Resource Planning Standard. The current South Carolina policies and procedures provide the necessary balance among the multiple factors that need to be considered in providing reliable service at reasonable prices. Specifically, South Carolina rules and laws for addressing integrated resource planning by electric utilities and demand-side management ("DSM") provide the Commission and utilities with excellent tools to appropriately balance the interests in promoting energy efficiency and providing a reliable and cost-effective supply of electricity for customers.

Q. PLEASE EXPLAIN HOW SOUTH CAROLINA'S LAWS ARE CONSISTENT WITH THE EISA 2007 INTEGRATED RESOURCE PLANNING STANDARD.

A. Section 58-37-10, et seq. of the Code of Laws of South Carolina 1976 ("S.C. Code Ann.") contains requirements for integrated energy efficiency resources into the resource planning process consistent with the EISA 2007 IRP standard. Specifically, S.C. Code Ann. defines "Integrated resource plan" as a plan

> [w]hich contains the demand and energy forecast for at least a fifteen-year period, contains the supplier's or producer's program for meeting the requirements shown in its forecast in an economic and reliable manner, *including both demand-side and supply-side options*, with a brief description and summary cost-benefit analysis, if available, of each option which was considered, including those not selected, sets forth the supplier's or producer's assumptions and conclusions with respect to the effect of the plan on the cost and reliability of energy service, and describes the external and environmental and economic consequences of the plan to the extent practicable.

S.C. Code. Ann. § 58-37-10(2) (emphasis added).

Additionally, S.C. Code Ann. § 58-37-20 provides that the PSCSC may adopt procedures that encourage electric utilities to invest in cost-effective energy efficient technologies and energy conservation programs. If adopted, these procedures must:

> Provide incentives and cost recovery for energy suppliers and distributors who invest in energy supply and end-use technologies that are cost-effective, environmentally acceptable, and reduce energy consumption or demand; allow energy suppliers and distributors to recover costs and obtain a reasonable rate of return on their investment in qualified demand-side management programs sufficient to make these programs at least as financially attractive as construction of new generating facilities; [and] require the Public Service Commission to establish rates and charges that ensure that the net income of an electrical or gas utility regulated by the commission after implementation of specific cost-effective energy conservation measures is at least as high as the net income would have been if the energy conservation measures had not been implemented.

S.C. Code Ann. § 58-37-20[1] (bracket and information added). Thus, the Commission has the authority to approve incentives that place effective energy efficiency on equal footing with supply side resources, thereby establishing energy efficiency as a priority resource.

Q. PLEASE EXPLAIN HOW THE COMMISSION'S CURRENT INTEGRATED RESOURCE PLANNING REQUIREMENTS ARE CONSISTENT WITH THE EISA 2007 INTEGRATED RESOURCE PLAN STANDARD.

A. The Commission's Order No. 98-502, dated July 2, 1998, makes DSM an integral part of the utility's resource planning process to meet load growth. Specifically,

[1] Section 58-37-20 also notes that "[f]or purposes of that section only, the term 'demand-side activity' means a program conducted by an electrical utility or public utility providing gas services for the reduction or more efficient use of energy requirements of the utility of its customers including, but not limited to, utility transmission and distribution system efficiency, customer conservation and efficiency, load management, cogeneration, and renewable energy technologies."

pursuant to the Commission's Order No. 98-502, the Company must include the following information in the Integrated Resource Plan ("IRP") that it files with the Commission: (1) the demand and energy for at least a 15-year period; (2) the program for meeting the requirements of the forecast in an economic and reliable manner, including demand-side and supply-side options; (3) a description and summary of cost-benefit analyses of options, including those not selected; and (4) the assumptions and conclusions with respect to the effect of the plan on the cost and reliability of energy service, and a description of the external, environmental, and economic consequences of the plan to the extent practicable.

Accordingly, the current IRP rules are consistent with the EISA 2007 standard and already require that energy efficiency be included as an integral part of the utility's resource plans. No additional standards are required.

II. <u>DUKE ENERGY CAROLINAS' 2008 INTEGRATED RESOURCE PLAN</u>

Q. PLEASE GIVE A BRIEF OVERVIEW OF DUKE ENERGY CAROLINAS' CURRENT INTEGRATED RESOURCE PLANNING PROCESS.

A. Stated very simply, the IRP process involves taking myriad resource options and, through screening and analysis, methodically funneling them down to an optimal combination of feasible and economic alternatives that will reliably meet the anticipated future customer loads. More specifically, the IRP process involves a number of steps: (1) development of planning objectives and assumptions; (2) preparation of an electric load forecast; (3) identification and screening of potential electric demand-side resource options; (4) identification of, screening of, and performing sensitivity analysis around the cost-effectiveness of potential electric supply-side resources under varying environmental compliance outcomes; (5) integration of cost effective demand-side and supply-side options into multiple portfolios maintaining an acceptable reserve margin; (6) performing final sensitivity and scenario analyses on the integrated resource alternatives; (7) selecting an optimal plan based on quantitative and qualitative factors (such as risk, reliability, technical feasibility, and other qualitative factors); and (8) developing a short-term action plan to identify the actions that need to be taken in the short-term to implement the plan.

Q. WHAT TYPES OF RESOURCE ALTERNATIVES ARE CONSIDERED IN DUKE ENERGY CAROLINAS' INTEGRATED RESOURCE PLANNING PROCESS?

A. The Company considers a multitude of options and combinations of options, including DSM programs (both energy efficiency and demand response programs), environmental compliance alternatives, and supply-side alternatives (such as peaking units, combined cycle units, coal-fired units, nuclear units, integrated gasification combined cycles, renewable resources, and purchases) in its IRP process.

The Company considers other factors, such as flexibility, risk, availability of equipment, constructability, and transmission constraints in determining the final plan.

Q. PLEASE EXPLAIN HOW DUKE ENERGY CAROLINAS CONSIDERS AND RECOMMENDS THE MOST APPROPRIATE METHOD TO INTEGRATE DSM RESOURCES INTO UTILITY, STATE, AND REGIONAL PLANS.

A. Duke Energy Carolinas believes that continuing to use an IRP process is the most appropriate method to integrate DSM resources into utility, state, and regional plans to meet the goals of reliable, cost-effective supply of power to customers. The Company uses sophisticated models for its IRP process. These models identify the least cost resources that could be used to satisfy future electric demand under a variety of constraints including cost, reliability concerns, and the recognized need for a diverse mix of fuel and technologies. Through the IRP process, Duke Energy Carolinas analyzes its existing and long-range resource plans which include fuel diversity and demand-side management opportunities.

The Company files this plan with the Commission, as well as with the North Carolina Utilities Commission, and serves the plan on the South Carolina Office of Regulatory Staff. The Commission, in its discretion, may schedule a briefing or hearing to address the plan.

Q. DOES DUKE ENERGY CAROLINAS INCLUDE DSM AS PART OF ITS INTEGRATED RESOURCE PLAN ANALYSIS?

A. Yes. In the IRP, DSM options, including demand response and energy efficiency programs, are screened for cost-effectiveness, and those programs that are demonstrated to be cost-effective in the screening process are included in the integration/optimization process.

Q. WHY ARE DSM IMPACTS AN INTEGRAL COMPONENT OF THE INTEGRATED RESOURCE PLANNING ANALYSIS?

A. Duke Energy Carolinas' DSM programs are designed to help reduce demand on Duke Energy Carolinas' system during times of peak load, and to reduce consumption during peak and off-peak hours. In demand response programs, customers agree to have some portion of their electrical usage interrupted for a period of time in exchange for a credit on their power bill. These programs reduce peak demand but have very little energy impact. In energy efficiency programs, the Company provides incentives such as a rebate, subsidized price, or equipment that will result in a reduction in the customer's energy usage. These programs reduce energy usage and may or may not have an impact on peak demand. Implementing cost-effective DSM programs can enable utilities to meet customer needs at a cost lower than traditional generation options.

Q. HOW DID DUKE ENERGY CAROLINAS MODEL DSM PROGRAMS IN ITS MOST RECENT IRP?

A. The Company modeled DSM programs in "bundles" to allow the optimization model to select demand-side alternatives in the same way the model can select supply-side and environmental compliance alternatives. The demand response programs were modeled as two separate bundles (one bundle of non-residential programs and one bundle of residential programs) that could be selected based on economics. The energy efficiency programs were modeled as three bundles that could be selected based on economics. The assumption was made that these costs and impacts for each bundle would continue throughout the planning period.

Q. WHAT WERE THE RESULTS OF THE DSM MODELING?

A. The DSM options were found to be cost effective and were included in the Company's 2008 IRP.

Q. WHAT IS THE STATUS OF THE COMPANY'S PROPOSED DSM PROGRAMS?

A. The Commission very recently approved Duke Energy Carolinas' proposed portfolio of DSM programs in Docket No. 2009-166-E. *See* Order No. 2009-336. The programs analyzed in the 2008 IRP include the approved portfolio of programs plus additional, undesignated DSM resources in anticipation of continued success of the Company's DSM programs.

Q. BESIDES ENERGY EFFICIENCY, WHAT OTHER FACTORS MUST BE CONSIDERED WHEN PLANNING GENERATION RESOURCES?

A. When utilities are considering future electric generating resource options, including purchase power or DSM alternatives, they have a number of constraints to consider. Achieving the best mix requires a delicate balance of a number of considerations including reliability, cost and environmental considerations. The generation resource must match the characteristics of a utility's future load requirements, whether it is peaking intermediate, or base load requirements. Any of these needs could make a particular generation source, including a DSM plan, more appropriate and, consequently, more reliable than another.

Q. IS THERE ANOTHER STANDARD THAT THE COMMISSION SHOULD CONSIDER ADOPTING TO PROMOTE DSM?

A. Duke Energy Carolinas believes the current state laws and Commission requirements, particularly the IRP requirements, provide the Commission and utilities with all that is necessary to promote the interest in making DSM an integral part of the utility's resource plan and no additional standard is necessary.

IV. CONCLUSION

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes.

BEFORE THE

PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2008-447-EG

Petition To Establish Docket To Consider Implementing the Requirements of Section 1307 (State Consideration of Smart Grid) of the Energy Independence and Security Act of 2007	))))))	**DIRECT TESTIMONY OF RICHARD G. STEVIE, PH.D. FOR DUKE ENERGY CAROLINAS, LLC**

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESSES.

A. My name is Richard G. Stevie. My business address is 139 E. Fourth St., Cincinnati, Ohio. I am Managing Director of Customer Market Analytics for Duke Energy Business Services, Inc. ("Duke Energy Business Services"), a wholly-owned service company subsidiary of Duke Energy Corporation ("Duke Energy").

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am Managing Director of Customer Market Analytics for Duke Energy Business Services. Duke Energy Business Services provides various administrative services to Duke Energy Carolinas, LLC ("Duke Energy Carolinas") and other Duke Energy affiliates including Duke Energy Ohio, Inc., Duke Energy Indiana, Inc., and Duke Energy Kentucky, Inc.

Q. PLEASE BRIEFLY DESCRIBE YOUR DUTIES AND RESPONSIBILITIES AS MANAGING DIRECTOR OF THE CUSTOMER MARKET ANALYTICS DEPARTMENT.

A. I have responsibility for several functional areas including load forecasting, load research, demand side management ("DSM") analysis, market analytics, customer survey research, retail energy analytics, and database analytics. The Customer Market Analytics Department is responsible for providing functional analytical support to Duke Energy Carolinas as well as to the other previously mentioned Duke Energy affiliates.

Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I received a Bachelor's degree in Economics from Thomas More College in May 1971. In June 1973, I was awarded a Master of Arts degree in Economics from the University of Cincinnati. In August 1977, I received a Ph.D. in Economics from the University of Cincinnati.

Past employers include the Cincinnati Water Works, where I was involved in developing a new rate schedule and forecasting revenues; the United States Environmental Protection Agency's Water Supply Research Division, where I was involved in the research and development of a water utility simulation model and analysis of the economic impact of new drinking water standards; and the Economic Research Division of the Public Staff of the North Carolina Utilities Commission ("Public Staff"), where I presented testimony in numerous utility rate cases involving natural gas, electric, telephone, and water and sewer utilities on several issues including rate of return, capital structure, and rate design. In addition, I was involved in the Public Staff's research effort and presentation of testimony regarding electric utility load forecasting. This included the development of electric load forecasts for the major electric utilities in North Carolina. I also was involved in research concerning cost curve estimation for electricity generation, rate setting, and separation procedures in the telephone industry, and the implications of financial theory for capital structures, bond ratings, and dividend policy. In July 1981, I became the Director of the Economic Research Division of the Public Staff with the responsibility for the development and presentation of all testimony of the Division.

In November 1982, I joined the Load Forecast Section of The Cincinnati Gas & Electric Company. My primary responsibility involved directing the development of the company's Electric and Gas Load Forecasts. I also participated in the economic evaluation of alternate load management plans and was involved in the development of the Company's Integrated Resource Plan ("IRP"), which integrated the load forecast with generation options and demand-side options.

With the reorganization after the merger of CG&E and PSI in late 1994, I became Manager of Retail Market Analysis in the Corporate Planning Department of Cinergy Services and subsequently General Manager of Market Analysis with responsibility for the load forecasting, load research, DSM impact evaluation, and market research functions of the Company. After the merger with Duke Energy, I became the General Manager of the Market Analysis Department with responsibility for several areas including load forecasting, load research, market research, DSM strategy and analysis, load management development, and business development analytics. Since then, I have become the Managing Director of the Customer Market Analytics Department.

In addition, since 1990 I have chaired the Economic Advisory Committee for the Greater Cincinnati Chamber of Commerce. I have been past part-time faculty member of Thomas More College located in Northern Kentucky and the University of Cincinnati teaching undergraduate courses in economics. In addition, I am an outside adviser to the Applied Economics Research Institute in the Department of Economics at the University of Cincinnati as well as a member of an advisory committee to the Economics Department at Northern Kentucky University.

Q. ARE YOU A MEMBER OF ANY PROFESSIONAL ORGANIZATIONS?

A. Yes, I am a member of the American Economic Association, the National Association of Business Economists, and the Association of Energy Services Professionals.

Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY BEFORE THIS COMMISSION?

A. Yes. I previously provided testimony in Duke Energy Carolinas' energy efficiency proceeding in Docket No. 2007-358-E. I also have presented testimony on several occasions before the North Carolina Utilities Commission, the Indiana Utility Regulatory Commission, the Kentucky Public Service Commission, and the Public Utilities Commission of Ohio.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to discuss several of the energy efficiency standards for electric utilities as set forth in the Energy Independence and Security Act of 2007 ("EISA 2007"), which amended the Public Utilities Regulatory Act of 1978 ("PURPA").

II. ENERGY EFFICIENCY POLICY CONSIDERATIONS OF EISA 2007

Q. WHAT ARE THE SIX POLICY CONSIDERATIONS RELATED TO ELECTRIC UTILITIES AND ENERGY EFFICIENCY?

A. The policy considerations for electric utilities include:

1) removing the throughput incentive and other regulatory and management disincentives to energy efficiency;
2) providing utility incentives for the successful management of energy efficiency programs;
3) including the impact on adoption of energy efficiency as one of the goals of retail rate design, recognizing that energy efficiency must be balanced with other objectives;
4) adopting rate designs that encourage energy efficiency for each customer class;
5) allowing timely recovery of energy efficiency related costs; and
6) offering home energy audits, offering demand response programs, publicizing the financial and environmental benefits associated with making home energy efficiency improvements, and educating homeowners about all existing Federal and State incentives, including the availability of low cost loans that make energy efficiency improvements more affordable.

EISA 2007 § 532(a)(17)(B)(1-6).

Q. DOES DUKE ENERGY CAROLINAS AGREE WITH THE EISA 2007 ENERGY EFFICIENCY ELECTRIC RATE DESIGN STANDARDS?

A. Duke Energy Carolinas does agree with the EISA 2007 energy efficiency standards in that the Company believes utility incentives should be aligned with the delivery of cost-effective energy efficiency and promote energy efficiency investments. However, the Company does not support all of the policy considerations regarding rate design. Further, although Duke Energy Carolinas agrees with the standard, the Company does not believe that the standard needs to be formally adopted. South Carolina's existing demand-side management ("DSM") statute, Section 58-37-20 of the South Carolina Code of Laws ("S.C. Code. Ann."), provides the Commission with sufficient flexibility to establish incentives that encourage energy efficiency and is consistent with the intent of EISA 2007.

Q. PLEASE EXPLAIN WHICH POLICY CONSIDERATIONS DUKE ENERGY CAROLINAS SUPPORTS UNDER THE EISA 2007 ENERGY EFFICIENCY ELECTRIC RATE DESIGN STANDARD.

A. Duke Energy Carolinas fully supports the first, second, fifth, and sixth policy considerations. I will comment on the third and fourth policy considerations later on in my testimony.

With respect to the first policy consideration, the Company agrees that in order to fully realize the potential of energy efficiency, the throughput incentive and other regulatory and management disincentives to energy efficiency must be addressed. Because energy efficiency programs actually reduce sales, utilities have a natural incentive to focus more on supply side options than demand side options. There is an opportunity to achieve earnings on the supply side investment that does not occur if the utility encourages customers to be more energy efficient. There are several methods which may be utilized for addressing the throughput incentive. These range from recovery of lost margins to decoupling to restructuring of rates. Although the Company supports addressing the throughput incentive issue, the choice of method utilized is important. South Carolina's DSM statute authorizes the Commission to adopt procedures to provide incentives and cost recovery for cost effective energy efficiency and DSM programs.

With regard to the second policy consideration, the Company believes that energy efficiency needs to be placed on a level playing field with supply side options. Providing utility incentives for the successful management of energy efficiency programs is the proper direction. Duke Energy Carolinas believes that in order to realize the greatest potential of benefits from energy efficiency, there must be a mechanism in place that both creates value for customers and provides an incentive for utilities to invest in energy efficiency and promote market innovation. In the past, utility companies have not had the same incentive to adopt energy efficiency measures as they have had to adopt traditional supply side resources. Consequently, Duke Energy Carolinas has proposed a recovery mechanism in connection with its modified save-a-watt proposal in Docket No. 2009-226-E, and which the Company believes provides an appropriate incentive for a utility.

With regard to the fifth policy consideration, the Company believes that in order to increase investment, utilities should be permitted to receive timely recovery of energy efficiency-related costs.

And, with respect to the sixth policy consideration, Duke Energy Carolinas believes that utilities should offer a portfolio of energy efficiency programs for customers, including home energy audits, demand response and conservation initiatives, as well as educational opportunities. This Commission recently approved Duke Energy Carolinas' programs that include such elements.

Q. ARE THERE POLICY CONSIDERATIONS WHY DUKE ENERGY CAROLINAS DOES NOT SUPPORT THE EISA 2007 ENERGY EFFICIENCY ELECTRIC RATE DESIGN STANDARD?

A. Yes. Although Duke Energy Carolinas supports the encouragement of energy efficiency, there are policy considerations, other than energy efficiency, that need to be considered in adopting actual rate design schemes for various customer classes. For example, rate designs such as inclining block rates or seasonal rates need to be supported by cost of service studies and through the load analysis. There are ways to promote and encourage energy efficiency other than simply imposing higher rates on customers for higher levels of consumption. Many customers, especially residential customers, may not have the time or sophistication to manage energy consumption on their own to avoid higher price blocks, and, potentially, would face an increase in their bills.

Duke Energy Carolinas believes that in order to reach maximum energy efficiency potential for customers, being energy efficient must become a value driven, back-of-mind approach. Customers should not have to sacrifice comfort and convenience to achieve savings and be more efficient.

Q. WHY DOES DUKE ENERGY CAROLINAS BELIEVE THAT THE EISA 2007 ELECTRIC ENERGY EFFICIENCY STANDARD NOT NEED TO BE FORMALLY ADOPTED?

A. Duke Energy Carolinas agrees with the standard. The Company merely suggests that a formal adoption of it is not necessary as there are sufficient regulations, policies, and utility tariffs in place that accomplish the goals of the EISA 2007 standard. *See* S.C. Code Ann. § 58-37-20.

Q. WHAT POLICIES OR REGULATIONS ARE IN PLACE THAT ACCOMPLISH THE GOALS OF EISA 2007?

A. DSM has been used successfully in South Carolina to help maintain the proper balance between the needs of consumers for reliable power at fair, just and reasonable rates and the ability of utilities to generate and distribute that power. Under existing statutes, specifically S.C. Code Ann. § 58-37-20, the Commission may approve utility-sponsored DSM initiatives and provide incentives and cost recovery. In order to change rate structures, utilities must do so in a base rate case. Utilities are required to provide a cost of service study and must support any changes in their retail rate design.

On both fronts, energy efficiency and rate design, the regulatory mechanisms are already in place for utilities to propose energy efficiency programs and changes to the rate structure and for the Commission to evaluate and decide whether or not to approve the proposals.

Q. WHAT ENERGY EFFICIENCY PROGRAMS DOES DUKE ENERGY CAROLINAS CURRENTLY OFFER THAT ARE CONSISENT WITH THE GOALS OF THE EISA 2007 ENERGY EFFICIENCY RATE DESIGN STANDARDS FOR ELECTRIC UTILITIES?

A. Duke Energy Carolinas developed its portfolio of programs in collaboration with interested stakeholders. The energy efficiency programs and measures considered and included consist of (i) programs already offered and tested by Duke Energy Carolinas' affiliate utility operating companies; (ii) new programs that were recommended to the Collaborative; and (iii) existing programs offered by Duke Energy Carolinas in the Carolinas. The list is as follows:

RESIDENTIAL CUSTOMER PROGRAMS

- Residential Energy Assessments
- Smart $aver® for Residential Customers
- Low Income Energy Efficiency and Weatherization
- Energy Efficiency Education Program for Schools
- Power Manager

NON-RESIDENTIAL CUSTOMER PROGRAMS

- Non-Residential Energy Assessments
- Smart $aver® for Non-Residential Customers
- PowerShare®

The Company's Residential and Non-Residential Energy Assessment programs (energy home audits) and Power Manager and PowerShare® programs (demand response programs) are consistent with a number of the considerations of EISA 2007 § 532(a)(17)(B)(6). As discussed above, the Company has filed a modified save-a-watt proposal with the Commission in Docket No. 2009-226-E to establish the incentive mechanism by which the Company will be paid for offering these programs.

III. <u>CONCLUSION</u>

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes.